

Mole IV Check Point

- ✓ Molar Mass
- ✓ Molar Volume

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1. What is the volume of 7.98 mol of helium gas at STP?

$$7.98 \text{ mol} \times \frac{22.4 \text{ L}}{\text{mol}} = 178.752 \text{ L He}$$
$$= 179 \text{ L He}$$

2. How many moles of nitrogen gas make up a volume of 19.02 L at STP?

$$19.02 \text{ L} \times \frac{1 \text{ mol}}{22.4 \text{ L}} = 0.849 \text{ mol N}_2$$

3. What is the mass of 4.56 L of SO_2 at STP?

$$4.56 \text{ L SO}_2 \times \frac{1 \text{ mol}}{22.4 \text{ L}} \times \frac{64.07 \text{ g}}{1 \text{ mol}} = 13.0 \text{ g of SO}_2$$

4. How many molecules are in 4.56 L of NO_2 at STP?

$$4.56 \text{ L} \times \frac{1 \text{ mol}}{22.4 \text{ L}} \times \frac{6.022 \times 10^{23} \text{ molecules}}{1 \text{ mol}}$$
$$= 1.23 \times 10^{23} \text{ molecules of NO}_2$$